

WHAT IS CLAIMED IS:

1. A micro-optical device having an aligned waveguide switch,
comprising:
 - a stationary input part with a plurality of input waveguides;
 - a stationary output part with a plurality of output waveguides;
 - a movable part with a plurality of switching waveguides, the movable part
being movable relative to the stationary input and output parts; and
 - at least one stop block that limits movement of the movable part to align at
least one of the switching waveguides with at least one of the input waveguides and at
least one of the output waveguides.
2. The device of claim 1, wherein the stationary input part, the stationary
output part and the movable part comprise a single-crystal-silicon layer of the device.
3. The device of claim 2, wherein the at least one stop block comprises a
stationary part of the single-crystal-silicon layer.
4. The device of claim 2, wherein the at least one stop block comprises a
polysilicon layer of the device.
5. The device of claim 4, further comprising at least one polysilicon
bumper connected to the movable part.
6. The device of claim 1, wherein the at least one stop block comprises a
polysilicon layer of the device.
7. The device of claim 6, further comprising at least one polysilicon
bumper connected to the movable part.

8. A method for fabricating a micro-optical device having an aligned waveguide switch, comprising:
 - forming a stationary input part, a stationary output part and a movable part in a structural layer;
 - forming a plurality of waveguides in the stationary input part, the stationary output part and the movable part; and
 - forming at least one stop block that limits movement of the movable part to align at least one of the waveguides of the movable part with at least one of the waveguides of the stationary input and output parts.
9. The method of claim 8, wherein forming the plurality of waveguides comprises defining a set of offsets between the waveguides of the movable part and the waveguides of the stationary input and output parts, and
 - wherein forming the at least one stop block comprises defining the at least one stop block with the set of offsets.
10. The method of claim 9, wherein forming the at least one stop block further comprises defining at least one edge of the movable part with the set of offsets.
11. The method of claim 9, wherein forming the at least one stop block further comprises defining at least one bumper connected to the movable part with the set of offsets.